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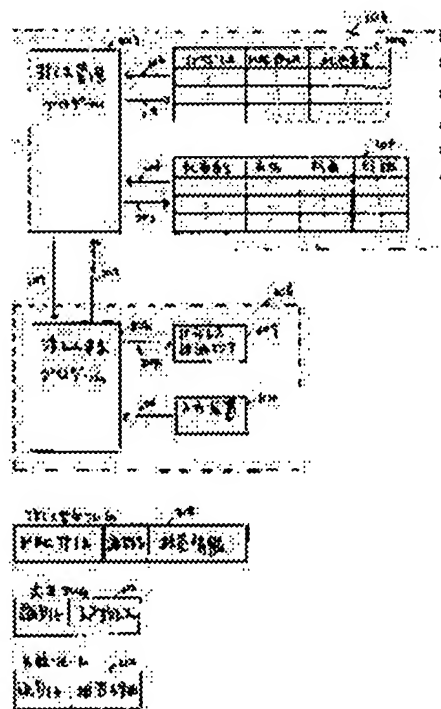
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(54) AUTOMATIC IP ADDRESS ALLOCATING METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To improve the efficiency of network construction work by automating the IP address setting of a terminal connected to a network, the management of an IP address and the check of a terminal user at the time of IP address allocation.

SOLUTION: A terminal 106 transmits an IP address request frame containing a MAC address and personnel information concerning the user of the terminal to a managing device 101, and the managing device collates the personnel information concerning the user contained in the IP address request frame with a personnel data base 105. When personnel information coincident with the personnel information concerning the user exists in the personnel data base, the non-allocated IP address is taken out of an IP address managing table and based on the MAC address contained in the received IP address request frame, this IP address is reported to the terminal that transmits the IP address request frame.



LEGAL STATUS

*** NOTICES ***

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the voluntary-quotas approach of the IP address by management equipment especially about the network system which needs an IP address.

[0002]

[Description of the Prior Art] Conventionally, the network administrator, the terminal user, etc. performed IP address setup of the terminal linked to a network system, and management of an IP address by the help, or the administration terminal which manages an IP address was placed on the network, and other terminals acquired the IP address from this administration terminal. Anyway, the user check at the time of IP address allocation was performed with the help. There are JP,5-28065,A and JP,5-183550,A as reference about such a conventional technique.

[0003]

[Problem(s) to be Solved by the Invention] By the method which sets up management of an IP address, and the IP address in each terminal with a help, damage may occur in a network system by input mistake (for example, the same address is set as two or more terminals) as above-mentioned. Moreover, also in the voluntary-quotas method by the address server, since it was necessary to perform a terminal user's check with a help, complicated procedure, such as an application to a network administrator, was required. Moreover, in the case of the method which continues using the IP address set up once, it needed to perform with the help that a network administrator also checked periodically the deletion (assign[un-]izing) activity of the IP address the user stopped requiring etc.

[0004] In order that this invention may solve such a trouble, it is automating the check of an IP address setup of the terminal linked to a network, management of an IP address, and the terminal user at the time of IP address allocation, and attains the increase in efficiency of a network construction activity.

[0005]

[Means for Solving the Problem] In order to attain said purpose, the IP address voluntary-quotas approach of this invention An IP address demand frame including the personnel information about this user containing identification information for a terminal to identify a user's name and this user of a MAC Address and this terminal is transmitted to management equipment. Said management equipment will be collated with the personnel database holding the personnel information in the organization in which said network system was installed in the personnel information about said user contained in said received IP address demand frame if said IP address demand frame is received. The IP address which is not assigned from said IP address managed table when the personnel information which is in agreement with the personnel information about said user exists in said personnel database is taken out. An IP address is notified to the terminal which transmitted said IP address demand frame based on the MAC Address contained in said received IP address demand frame.

[0006]

[Embodiment of the Invention] Hereafter, the example of this invention is explained to a detail with reference to a drawing.

[0007] They are the block diagram in which drawing 1 shows the configuration of the network system of one example of this invention, and a block diagram explaining the actuation which drawing 2 manages an IP address and assigns an IP address to each terminal.

[0008] As shown in drawing 1, the terminal 106 is connected with management equipment 101 in the network 100. In addition, a terminal 106 is one of the terminals which exist on a network 100.

Management equipment 101 has OS102, the address manager 103, the IP address managed table 104, and the personnel database 105 that reflects personnel affairs in the company correctly.

[0009] Two or more available IP addresses are beforehand registered into the IP address managed table 104. One management equipment 101 was installed on the network 100, it always considered as operating status, and the IP address of the terminal 106 on a network 100 is always managed by the address manager 103 which operates on OS102. In addition, you may make it form the management equipment of the reserve for the backup at the time of management device failure generating.

[0010] A terminal 106 has OS107, the address demand program 108 and the IP address storage area 109, and an input unit 110.

[0011] In drawing 2, if personnel information (a personnel number, a name, affiliation, executive, etc.) is received from an input unit 110 (arrow head 201), the IP address demand program 108 within a terminal 106 will create the IP address demand frame 210 containing the identifier which shows a MAC Address (a MAC Address is set up with the value of an equipment proper at the time of manufacture), personnel information, and an address demand, and will transmit it to management equipment 101 (arrow head 202).

[0012] Based on the personnel information in the IP address demand frame 210, the address manager 103 searches the personnel database 105, and when the contents of the received personnel information and the personnel database 105 are inharmonious, it returns the failure frame 212 including the identifier which shows address-assignment refusal, and a refusal reason (arrow head 207). When the contents are in agreement, based on the MAC Address in the IP address demand frame 210, the MAC Address in the IP address managed table 104 is searched. The failure frame 212 including the identifier the same MAC Address indicates address-assignment refusal to be in a registered case, and a refusal reason is returned as a result of retrieval (arrow head 207). If the same MAC Address does not exist, a non-assigned IP address is taken out from the IP address managed table 104, and after registering a MAC Address and a personnel number into the location corresponding to it, the identifier which shows address-assignment authorization, and the response frame 211 including an IP address are returned (arrow head 207).

[0013] The address demand program 108 stores the added IP address in the IP address storage area 109, if a response frame 211 is received. If the failure frame 212 is received, a refusal reason will be outputted and it will end.

[0014] Next, management of an IP address when a change, retirement, etc. occur is explained. If the personnel database 105 changes by change of personnel etc., when the IP address managed table 104 is searched based on the personnel number of the personnel who changed and the IP address is assigned to the personnel, the address manager 103 will delete the applicable personnel number and MAC Address in the IP address managed table 104, and will return an IP address to an intact condition.

[0015] Drawing 3 is the flow chart having shown the outline of IP address allocation processing of this invention. Next, it explains using this drawing.

[0016] The management equipment side is standing by by the waiting for frame reception (step 1).

[0017] The address demand program within a terminal incorporates personnel information from an input unit (step 2), makes the IP address demand frame containing personnel information and a MAC Address (step 3), and transmits it to management equipment (step 4). It stands by by the frame receiving waiting from management equipment after that (step 5).

[0018] If management equipment receives an IP address demand frame from a terminal (step 6), the personnel information in a receiving frame will investigate whether it exists in a personnel database (step 7). When there is no relevance in personnel information, a failure frame is created and it sends to a terminal (step 8). If personnel information is in agreement, it confirms whether the MAC Address in a receiving frame is registered on an IP address managed table (step 9), and when registered, a failure

frame will already be sent to a terminal (step 10). When the MAC Address in a receiving frame has not been registered, a non-assigned IP address is taken out from an IP address managed table (step 11), and the data in a receiving frame are written in the item (a MAC Address, personnel number) corresponding to it (step 12). Then, a response frame including the taken-out IP address is made (step 13), and it returns to a terminal (step 14).

[0019] A terminal judges that the class of frame receives the frame from management equipment (step 16), if it is a failure frame, will judge a refusal reason and will carry out an error message etc. (step 17). (step 15) If what received is a response frame, the IP address in a frame will be made into a self-IP address, and it will write in an IP address storage area (step 18).

[0020] Drawing 4 is the flow chart having shown the outline of the processing at the time of personnel's change generating. Next, it explains using this.

[0021] If a personnel database detects changes (retirement, transfer, etc.) of personnel (step 19), an address manager searches an IP address managed table using a change person's personnel number (step 20), and if not registered, it will end processing (step 21). When registered, the personnel number and MAC Address are deleted from an IP address managed table, and an IP address is returned to the condition of not assigning (step 22).

[0022] In this example, since it can respond to staff reassignment promptly by updating an IP address managed table according to staff reassignment, even when affiliation changes, it can connect with a network immediately. Moreover, it comes to be able to perform easily returning the IP address which became unnecessary by a change, retirement, etc. to the condition of not assigning.

[0023]

[Effect of the Invention] According to this invention the above passage, an IP address setup and user checks of a terminal at the time of network-system construction and terminal extension etc. can be automated, and an outsider's (external) unlawful access can be prevented.

[Translation done.]